

WHAT IS CLAIMED IS:

1. A method for decoding a pair of quadrature signals, the method comprising:
 - a) obtaining a first sample;
 - b) determining a last direction and a last state using the first sample;
 - c) obtaining a second sample, wherein a current state is determined using the second sample;
 - d) generating an output responsive to the last sample, a last direction and their current state.
2. The method of claim 1, wherein the method is performed for an X axis pair and a Y axis pair.
3. The method of claim 1, wherein generating an output further comprises looking up the output in a positive look-up table if the direction is positive; and looking up the output in a negative look-up table if the direction is negative.
4. The method of claim 1, wherein the quadrature signals are generated by a user input device.
5. The method of claim 1, wherein the method further comprises determining motion and rotation direction from the output.
6. The method of claim 3, wherein there are more than one positive look-up tables and more than one negative look-up tables and the selection of a look-up table depends upon a number of states that were skipped.
7. The method of claim 1, wherein the method further comprises summing outputs generated during a predetermined period, and transmitting a sum for each axis of movement at the end of the period.
8. A method for decoding a pair of quadrature signals, the method comprising:
 - a) obtaining a first sample of the quadrature signals at a first time;
 - b) determining a last direction and a last state from the first sample;
 - c) obtaining a second sample of the quadrature signals at a second time; and
 - d) determining an output signal using the last state, the last direction and the current state.
9. The method of claim 8, wherein the method further comprises summing output signals for a predetermined length of time.
10. The method of claim 9, wherein the method further comprises providing an output signal to a host computer comprised of a sum of outputs.

- 1 11. The method of claim 8, wherein the last direction is one of either positive or negative
2 direction.
- 1 12. The method of claim 11, wherein different lookup tables are used depending upon the last
2 direction being positive or negative.
- 1 13. A computer readable medium, having included thereon software code that when executed,
2 results in:
3 a) capture of a first sample of the quadrature signals at a first time;
4 b) capture of a second sample of the quadrature signals at a second time;
5 c) determination of a last direction;
6 d) generation of an output responsive to the first sample, the second sample and the last
7 direction.
- 1 14. The computer readable medium of claim 14, wherein the software code is contained in a
2 downloadable file.
- 1 15. The computer readable medium of claim 13, wherein the software code, when executed
2 further results in:
3 a) summation of outputs for a predetermined period of time, thereby creating a net
4 change sum; and
5 b) transmitting the net change sum to a host computer.